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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/375,695	08/17/99	HOYLE	GE-06987A

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EXAMINER
THOMPSON, J

ART UNIT	PAPER NUMBER
2855	

DATE MAILED: 03/15/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
09/375,695

Applicant(s)  
Hoyle et al.

Examiner  
Jewel Thompson

Group Art Unit  
2855



☒ Responsive to communication(s) filed on Aug 13, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-12 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-12 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the **pressure sensor** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 4 recites the limitation "the value" in line 8.

Claim 5 recites the limitation "the cross-sectional" in line 4.

Claim 5 recites the limitation "the form" in line 5.

There is insufficient antecedent basis for these limitations in the above claims.

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*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6, 7 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Alvesteffer et al (6,125,695).

Alvesteffer teaches the aspects of the claimed invention, an integrated fluid flow, temperature and pressure sensor, the sensor (12) comprising:

a body (10) including a path for the flow of fluid:

a temperature determining means (38) located within the body, and coupled to the path., for making a determination of the upstream temperature of a fluid flowing in the path:

heating means (24) located within the body (col. 4, lines 24-34), and coupled to the path, for transferring heat from the heating means to the fluid;

control means (54) located within the , and coupled to the heating means and to the temperature means, for applying power to the heating means in an amount required to raise the temperature of the heating means above the upstream temperature by the predetermined amount, and for converting the value of the power into a flow signal representing a corresponding flow (col. 7, lines 59- col. 8, lines 32);

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pressure sensing means (54) located within the body, for sensing fluid pressure in the path at a location adjacent to one of the heating means and the temperature determining means, for generating an electrical signal representative of the pressure of the fluid;

signal processor means (130) located within the body, and coupled to the control means, to the temperature determining means, and to the pressure sensing means (col. 10, lines 23-30);

signal connector means (136) mounted on the body, and connected to at least the signal processing means, for providing a standard connection between the signal processing means and the signal transmission path (fig. 5);

the pressure sensing means located within the body, generates an analog electrical signal representative of the fluid (col. 9, lines 8-18);

the control means comprises a second temperature determining means (40) coupled to the heating means, for determining the temperature of the heating means;

the second temperature determining means is an electrical resistor (col. 5, lines 30-33) and the second temperature determining means comprises means coupled to the heating means for measuring the electrical resistance of the heating means (Fig. 4), and the control means comprises means for converting the value of the resistance into a corresponding temperature (col. 7, lines 49-65);

the path is associated with a peripheral wall (22), and wherein the heating means is in the form of a peripheral structure surrounding the peripheral wall, and the thermal contact therewith (fig. 2);

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the peripheral wall is made from conventional materials having thickness commensurate with the pressure and temperature of the fluid, except in a region near that in which the heating means is thermally coupled, in which region said peripheral wall is made from a material having higher strength than the conventional materials, of a thickness less than the commensurate thickness (col. 4, lines 9-24).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5, and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alvesteffer et al (6,125,695) in view of Redford et al. (5,973,313) and Azima (6,062,077).

Alvesteffer et al teaches the aspects of the claimed invention **except** wherein the control means comprises a memory preprogrammed with a value corresponding to the cross-sectional area of the path, and the flow determination is in the form of one of mass quantity per unit time and volume per unit time; the signal processing means are integrated into a single unit; the pressure sensing means is a ratiometric pressure sensor and a microelectromechanical system device; a controllable valve having a controllable flow channel connected by a further fluid path to the flow path of the integrated sensor, the controllable valve being within the body, and a control

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processor at a location remote from the body of the integrated sensor. Alvesteffer et al teaches a controller comprising a memory. However, it is not specifically taught that there is a preprogrammed memory with a value corresponding to the cross-sectional area of the path, but the processor does teach the mass flow. The preprogrammed memory is just that, preprogrammed by someone or something. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to have preprogrammed the memory to provide the cross-sectional area of the path in order to determine the mass flow rate in any structural body.

As taught by Alvesteffer et al, it appears that the control means and the signal processor are integrated into a single unit as shown in fig. 5. It would have been obvious to one of ordinary skill in the art at the time that the invention was made integrated the processor and the control means as to provide the most efficient and accurate output.

Redford et al teaches ratiometric control signals. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to have placed a ratiometric sensor of Redford et al in the mass flow sensor of Alvesteffer et al in order to provide a measurement of the ratio of pressure proportional to the measurement of heat and temperature.

Azima teaches a mass flow controller comprising a valve (20). It would have been obvious to one of ordinary skill in the art at the time that the invention was made to have placed the valve of Azima in the flow sensor of Alvesteffer et al in order to provide control to the flow flowing in the path.

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*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5,233,868 Coats et al teaches a non-intrusive mass flow measuring apparatus

5,965,813 Wan et al teaches an integrated flow sensor

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jewel Thompson at (703) 308-6726. The examiner can normally be reached on Mon-Fri. From 8:00am to 4:30pm. The fax phone number for this Group 703-308-7722. If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ben Fuller, can be reached on (703) 308-0079.

jvt

March 12, 2001

